

List of Contents

NUMBER 1/2

COMBAT MODELLING AND NEURAL NETWORKS IN IDENTIFICATION AND CONTROL

B. Neta, D. Barr and R. Weil	xi	Preface
M. E. Tillman and C. B. Engle, III	1	An Historical Reenactment of the Battle of Gettysburg on Janus (Army)
M. D. Proctor and G. Paulo	9	Modeling in Support of Operational Testing
H. J. Larson, W. Kemple and D. A. Dryer	15	Graphical Displays of Synchronization of Tactical Units
W. G. Kemple and H. J. Larson	25	Computer Visualization of Battlefield Tenets
D. R. Barr and B. Mansager	39	Terrain Map Resolution
J. C. Fernan	47	A Description of the Single Exercise Analysis Station (SEAS)
M. E. Tillman	55	Optimizing Force Ratios to Develop a Course of Action for the G3 (Operations Officer)
D. Cersovsky, E. Kleinschmidt, B. Mansager and B. Neta	65	Audio Detection Algorithms in Combat Simulation
M. J. Johnson	73	Quantifying the Value of Reconnaissance Using Lanchesterian Type Equations
M. W. Fortanbary, B. Mansager and C. F. Newberry	81	Supporting Acquisition Decisions through Effective Experimental Design
R. A. Kilmer	91	Applications of Artificial Neural Networks to Combat Simulations
S. N. Balakrishnan and R. D. Weil	101	Neurocontrol: A Literature Survey
K. Takaba, Y. Iiguni and H. Tokumaru	119	An Improved Tracking Kalman Filter Using a Multi-Layered Neural Network
M. A. Sartori and P. J. Antsaklis	129	Gaussian Neural Networks for Control Function Implementation

Y. Iiguni	143	A Robust Neurocontroller Incorporating <i>a priori</i> Knowledge of Plant Dynamics
A. Patrikar and J. Provence	159	Nonlinear System Identification and Adaptive Control Using Polynomial Networks
J. Dalton and S. N. Balakrishnan	175	A Neighboring Optimal Adaptive Critic for Missile Guidance
L. L. E. Massone	189	Double-Target Experiments with a Sequential Neuro-Controller

NUMBER 3

I. Kramer	1	The Impact of Zidovudine (AZT) Therapy on the Survivability of Those with the Progressive HIV Infection
D. J. Reid and M. E. Orlowska	15	The Propagation of Updates to Relational Tables in a Distributed Database System
W. H. E. Day, E. Kubicka, G. Kubicki and F. R. McMorris	27	The Asymptotic Plurality Rule for Molecular Sequences
L. Ingber, R. Srinivasan and P. L. Nunez	43	Path-Integral Evolution of Chaos Embedded in Noise: Duffing Neocortical Analog
S. H. Doole	55	A Stefan-Like Problem with a Kinetic Condition and Surface Tension Effects
E. Triantaphyllou and A. L. Soyster	69	An Approach to Guided Learning of Boolean Functions
T. Kämpke	87	Reversibility and Equivalence in Directed Markov Fields
G. Jumarie	103	Structural Sliding Equations for the Tracking Control of Mechanical Systems with Active Structure

NUMBER 4

Y. Yavin and C. Frangos	1	The Motion of a Disk Rolling on a Vibrating Horizontal Plane: Feasible Control and Path Controllability
H. T. Banks and R. C. Smith	17	Parameter Estimation in a Structural Acoustic System with Fully Nonlinear Coupling Conditions
A. I. Adamatzky	51	Voronoi-Like Partition of Lattice in Cellular Automata
C. Koide and H. Seno	67	Sex Ratio Features of Two-Group SIR Model for Asymmetric Transmission of Heterosexual Disease
L. Egghe and R. Rousseau	93	Stochastic Processes Determined by a General Success-Breeds-Success Principle
A. I. Adamatzky	105	Computation of Shortest Path in Cellular Automata

S. S. Cheng	115	Errata to "Nonexistence Criteria for Positive Solutions of a Nonlinear Recurrence Relation"
--------------------	-----	---

NUMBER 5

S. K. Ng	1	Information and System Modelling
J.-D. Lee	17	Recognizing One-DOF Industrial Tools Using Invariant Moments
A. Kehagias	25	Bayesian Classification of Hidden Markov Models
K. E. Johnson, K. W. Bauer, Jr., J. T. Moore and M. Grant	45	Metamodelling Techniques in Multidimensional Optimality Analysis for Linear Programming
P. R. Johnston	61	Second Order Overhauser Elements for Boundary Element Analysis
B. V. Rathish Kumar and K. B. Naidu	75	A Pulsatile Suspension Flow Simulation in a Stenosed Vessel
D. J. Reid	87	Genetic Algorithms in Constrained Optimization

NUMBER 6

MODELLING AND SIMULATION PROBLEMS ON TUMOR-IMMUNE SYSTEM DYNAMICS

N. Bellomo	xi	Preface
J. A. Adam	1	Effects of Vascularization on Lymphocyte/Tumor Cell Dynamics: Qualitative Features
L. Arlotti and M. Lachowicz	11	Qualitative Analysis of a Nonlinear Integrodifferential Equation Modeling Tumor-Host Dynamics
Ž. Bajzer, M. Marušić and S. Vuk-Pavlović	31	Conceptual Frameworks for Mathematical Modeling of Tumor Growth Dynamics
M. A. J. Chaplain	47	Avascular Growth, Angiogenesis and Vascular Growth in Solid Tumours: The Mathematical Modelling of the Stages of Tumour Development
G. Forni	89	Tumor-Host Relationship: The Viewpoint of an Immunologist towards Applied Mathematicians
V. A. Kuznetsov, A. V. Ivshina, O. V. Sen'ko and A. V. Kuznetsova	95	Syndrome Approach for Computer Recognition of Fuzzy Systems and Its Application to Immunological Diagnostics and Prognosis of Human Cancer
S. A. Maggelakis	121	The Effects of Tumor Angiogenesis Factor (TAF) and Tumor Inhibitor Factors (TIFs) on Tumor Vascularization: A Mathematical Model

L. Preziosi	135	From Population Dynamics to Modelling the Competition between Tumors and Immune System
A. Yu. Yakovlev	153	Threshold Models of Tumor Recurrence

NUMBER 7

S. Sur and P. K. Srimani	1	Incrementally Extensible Hypercube Networks and Their Fault Tolerance
J. Zhang and L. Chen	17	Periodic Solutions of Single-Species Nonautonomous Diffusion Models with Continuous Time Delays
P. Amodio and F. Mazzia	29	Parallel Iterative Solvers for Boundary Value Methods
T. Sawik	45	A Multilevel Machine and Vehicle Scheduling in a Flexible Manufacturing System
Y. Ding and M. Girardi	59	Periodic Solutions for a Class of Symmetric and Subquadratic Hamiltonian Systems
S. K. Yang and C. H. Cooke	73	Data Compression Based on the Cubic B-Spline Wavelet with Uniform Two-Scale Relation
A. Korzeniowski and D. Greenspan	89	Microscopic Turbulence in Water
L. Ingber	101	Statistical Mechanics of Nonlinear Nonequilibrium Financial Markets: Applications to Optimized Trading
A. Buratto and B. Viscolani	123	Errata to "An Optimal Control Student Problem and a Marketing Counterpart"

NUMBER 8/9

MONTE CARLO AND QUASI-MONTE CARLO METHODS

J. Spanier	xi	Preface
G. L. Mullen	1	Combinatorial Methods in the Construction of Point Sets with Uniformity Properties
G. Rote and R. F. Tichy	9	Quasi-Monte-Carlo Methods and the Dispersion of Point Sequences
Y.-J. Xiao and H. Faure	25	Volume-Discrepancy Estimates in One and Two Dimensions
B. Moskowitz and R. E. Caflisch	37	Smoothness and Dimension Reduction in Quasi-Monte Carlo Methods
G. Larcher, W. Ch. Schmid and R. Wolf	55	Quasi-Monte Carlo Methods for the Numerical Integration of Multivariate Walsh Series

H. Niederreiter and I. H. Sloan	69	Variants of the Koksma-Hlawka Inequality for Vertex-Modified Quasi-Monte Carlo Integration Rules
T. C. Hesterberg	79	Estimates and Confidence Intervals for Importance Sampling Sensitivity Analysis
I. M. Sobol' and A. V. Tutunnikov	87	A Variance Reducing Multiplier for Monte Carlo Integrations
A. A. Zhigljavsky and M. V. Chekmasov	97	Comparison of Independent, Stratified and Random Covering Sample Schemes in Optimization Problems
K. K. Sabelfeld	111	Integral and Probabilistic Representations for Systems of Elliptic Equations
S. E. Günger and D. K. Ferry	131	Ensemble Monte Carlo Study of Nonequilibrium Carrier Dynamics in Photo-Excited <i>p-i-n</i> Structures
R. C. Griffiths and S. Tavaré	141	Monte Carlo Inference Methods in Population Genetics
M. Nedjalkov, I. Dimov, F. Rossi and C. Jacoboni	159	Convergency of the Monte Carlo Algorithm for the Solution of the Wigner Quantum-Transport Equation
U. Ravaioli, C. H. Lee and M. B. Patil	167	Monte Carlo Simulation of Microwave Devices

NUMBER 10

A. C. Desages, M. C. Colantonio and G. Chen	1	Matching Conditions for Stability Analysis of Nonlinear Feedback Control Systems
P. Laffez and K. Abbaoui	11	Modelling of the Thermic Exchanges During a Drilling. Resolution with Adomian's Decomposition Method
K. Han, J. Franke and Y. T. Feng	15	Numerical Methods of Generating Random Points with Prescribed Distributional Properties on (Non)Rational Bezier Surfaces
P. Amodio and L. Brugnano	29	The Conditioning of Toeplitz Band Matrices
M. E. Orme and M. A. J. Chaplain	43	A Mathematical Model of Vascular Tumour Growth and Invasion
J. Henderson and H. B. Thompson	61	Smoothness of Solutions for Boundary Value Problems with Impulse Effects, II
C. Genest and S.-S. Zhang	71	Hilbert's Metric and the Analytic Hierarchy Process
P. Broadbridge and B. M. Pincombe	87	The Stefan Solidification Problem with Nonmonotonic Nonlinear Heat Diffusivity
J. Brandt, T. Mikkelsen, S. Thykier-Nielsen and Z. Zlatev	99	Using a Combination of Two Models in Tracer Simulations

J. R. Cho and J. T. Oden	117	<i>A Priori</i> Modeling Error Estimates of Hierarchical Models for Elasticity Problems for Plate- and Shell-Like Structures
M. A. Aguirre Téllez	135	The Product of Convolution $P_{\pm}^{\lambda} * P_{\mp}^{\mu}$ and the Multiplicative Product $P_{\pm}^{\lambda} \cdot \delta^{(k)}(P_{\pm})$

NUMBER 11/12

RECENT ADVANCES IN DISCRETE EVENT SYSTEMS

L. Dai	xi	Preface
L. Dai	xiii	Dedication
A. D. Gandhi and C. G. Cassandras	1	Optimal Control of Polling Models for Transportation Applications
J. G. Thistle	25	Supervisory Control of Discrete Event Systems
J. A. Stiver, P. J. Antsaklis and M. D. Lemmon	55	A Logical DES Approach to the Design of Hybrid Control Systems
X.-R. Cao	77	Uniformization and Performance Sensitivity Estimation in Closed Queueing Networks
C.-S. Chang, R. Nelson and D. D. Yao	93	Scheduling Parallel Processors: Structural Properties and Optimal Policies
G. I. Winograd and P. R. Kumar	115	The FCFS Service Discipline: Stable Network Topologies, Bounds on Traffic Burstiness and Delay, and Control by Regulators
W. Zhai, P. Kelly and W.-B. Gong	131	Genetic Algorithm with Noisy Fitness
L. Dai	143	Sensitivity Analysis of Stationary Performance Measures for Markov Chains
B. H. Krogh and S. Kowalewski	161	State Feedback Control of Condition/Event Systems
A. Jean-Marie and G. J. Olsder	175	Analysis of Stochastic Min-Max-Plus Systems: Results and Conjectures
A. Puri and P. Varaiya	191	Decidable Hybrid Systems
J. Wang and P. B. Luh	203	Scheduling of a Machining Center
B. P. Zeigler, Y. Moon, V. L. Lopes and J. Kim	215	DEVS Approximation of Infiltration Using Genetic Algorithm Optimization of a Fuzzy System

